OBJECT ORIENTED PROGRAMMING WITH JAVA 8– LAB 13

1. Write a program which takes the name of a file from user, then displays information about whether the file exists, the length of the file in bytes etc and read the contents of the file and display it.

Ans=

Code-

```
import java.io.*;
import java.util.Scanner;

public class FileInformation
{
         public static void main(String[] args)
        {
         Scanner inputScanner = new Scanner(System.in);
         System.out.print("Enter the name of the file: ");
         String filename = inputScanner.nextLine();

         File file = new File(filename);

         if (file.exists())
                {
                 long fileLength = file.length();
                 System.out.println("The file '" + filename + "' exists.");
                 System.out.println("Length of the file: " + fileLength + " bytes");

            try {
                 Scanner fileScanner = new Scanner(file);
                 System.out.println("Contents of the file '" + filename + "':");
                 while (fileScanner.hasNextLine())
                        {
                         System.out.println(fileScanner.nextLine());
                        }
                 fileScanner.close();
                }
                 catch (FileNotFoundException e)
                {
                 System.err.println("Error reading the file: " + e.getMessage());
                }
                }
         else
                {
                 System.out.println("The file '" + filename + "' does not exist.");
                }
        }
}
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA>javac FileInformation.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA>java FileInformation
Enter the name of the file: ArrayList.java
The file 'ArrayList.java' exists.
Length of the file: 479 bytes
Contents of the file 'ArrayList.java':
import java.util.ArrayList;

class ArrayListMain
{
        public static void main(String[] args)
        {
                ArrayList<String> FruitsList = new ArrayList();

                FruitsList.add("Apple");
                FruitsList.add("Mango");
                FruitsList.add("Orange");
                FruitsList.add("Grapes");
                FruitsList.add("Banana");
                System.out.println("Fruits List: " + FruitsList);

                List<String> ExtractedFruits = FruitsList.subList(1,4);
                System.out.println("Extracted Portion: " + ExtractedFruits);
        }
}

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA>
```

2. Write a program to read the name of an image file and create a copy of that image.

Ans=

Code-

```
import java.io.IOException;
import java.nio.file.*;
import java.util.Scanner;

public class CopyImageFile
{
        public static void main(String[] args)
        {
         Scanner inputScanner = new Scanner(System.in);
         System.out.print("Enter the name of the image file to copy: ");
         String sourceFileName = inputScanner.nextLine();

         Path sourcePath = Paths.get(sourceFileName);

         if (Files.exists(sourcePath) && Files.isRegularFile(sourcePath))
               {
                 try
                       {
                        String fileName = sourcePath.getFileName().toString();
                        String copyFileName = "copy_" + fileName;

                        Path copyPath = Paths.get(copyFileName);
                        Files.copy(sourcePath, copyPath, StandardCopyOption.REPLACE_EXISTING);

                        System.out.println("Image file copied successfully as " + copyFileName);
               }
                catch (IOException e)
               {
                System.out.println("Error copying the image file: " + e.getMessage());
               }
               }
                else
                       {
                        System.out.println("The specified file does not exist or is not a regular file.");
                       }
        }
}
```

Execution-

Before compilation,

Compilation,

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA>javac CopyImageFile.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA>java CopyImageFile
Enter the name of the image file to copy: java call by reference.png
Image file copied successfully as copy_java call by reference.png
```

After compilation,

3. Write a program to serialize the Employee object with id, name and dept. Create 2 objects for it and store it in a file and then deserialize it and print the details.

Ans=

Code- Part1,

```
import java.io.*;

class Employee implements Serializable
{
         int id;
         String name;
         String department;

         public Employee(int id, String name, String department)
         {
          this.id = id;
          this.name = name;
          this.department = department;
         }

         @Override
         public String toString()
         {
          return "Employee ID: " + id + ", Name: " + name + ", Department: " + department;
         }
}
```

Part2,

```
public class SerializationEmployee
{
         public static void main(String[] args)
        {
         Employee employee1 = new Employee(1, "Sunil Patil", "HR");
         Employee employee2 = new Employee(2, "Yogesh Rane", "IT");

         try (ObjectOutputStream outputStream = new ObjectOutputStream(new FileOutputStream("employees.ser")))
                {
                 outputStream.writeObject(employee1);
                 outputStream.writeObject(employee2);
                }
         catch (IOException e)
                {
                 e.printStackTrace();
                }

         try (ObjectInputStream inputStream = new ObjectInputStream(new FileInputStream("employees.ser")))
        {
         Employee deserializedEmployee1 = (Employee) inputStream.readObject();
         Employee deserializedEmployee2 = (Employee) inputStream.readObject();

         System.out.println("Deserialized Employee 1: " + deserializedEmployee1);
         System.out.println("Deserialized Employee 2: " + deserializedEmployee2);
        }
         catch (IOException | ClassNotFoundException e)
        {
            e.printStackTrace();
        }
        }
}
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA>javac SerializationEmployee.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA>java SerializationEmployee
Deserialized Employee 1: Employee ID: 1, Name: Sunil Patil, Department: HR
Deserialized Employee 2: Employee ID: 2, Name: Yogesh Rane, Department: IT
```

4. Write a program to read contents of a file line by line and display it.

Ans=

Code-

```
import java.io.BufferedReader;
import java.io.FileReader;
import java.io.IOException;

public class ReadFileLineByLine
{
        public static void main(String[] args)
        {
         String filename = "ArrayAnimalList.java";

         try (BufferedReader reader = new BufferedReader(new FileReader(filename)) )
                {
                 String line;
                 while ((line = reader.readLine()) != null)
                        {
                         System.out.println(line);
                        }
                }
         catch (IOException e)
                {
                 e.printStackTrace();
                }
        }
}
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA>javac ReadFileLineByLine.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA>java ReadFileLineByLine
import java.util.List;
import java.util.ArrayList;
import java.util.Iterator;

class ArrayAnimalList
{
        public static void main(String[] args)
        {
                ArrayList<String> AnimalList = new ArrayList<>();

                AnimalList.add("Tiger");
                AnimalList.add("Lion");
                AnimalList.add("Elephant");
                AnimalList.add("Monkey");
                AnimalList.add("Leopard");
                System.out.println("Animals :" + AnimalList);

                AnimalList.set(2,"Wolf");
                AnimalList.set(4,"Deer");
                System.out.println("Animals after updating: " + AnimalList);

                Iterator<String> iterator = AnimalList.iterator();
                String lastElement = null;
                while (iterator.hasNext())
                {
                 lastElement = iterator.next();
                 if (!iterator.hasNext())
                        {
                         iterator.remove();
                        }
                }

                System.out.println("Removed Last Animal: " + lastElement);
                System.out.println("Final Animal list: " + AnimalList);
        }
}



C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA>
```